What is Claimed is:

1. A method of generating optimized traffic movement plans for a region having a plurality of traffic and a plurality of traffic conditions, said method comprising:

determining a first planning boundary for said traffic based upon the traffic conditions of said region;

employing said first planning boundary and repetitively generating a first plurality of traffic movement plans for the traffic of said region;

selecting one of said first plurality of traffic movement plans as a first optimized traffic movement plan for execution;

outputting said first optimized traffic movement plan for controlling traffic movement in said region;

determining current traffic conditions of said region;

updating said first planning boundary to provide a second planning boundary for said traffic based upon said current traffic conditions;

employing said second planning boundary and repetitively generating a second plurality of traffic movement plans for the traffic of said region;

selecting one of said first and second plurality of traffic movement plans as a second optimized traffic movement plan for execution; and

outputting said second optimized traffic movement plan for controlling traffic movement in said region.

2. The method of Claim 1 further comprising:

selecting said first optimized traffic movement plan as said second optimized traffic movement plan for execution.

3. The method of Claim 1 further comprising:

selecting one of said first plurality of traffic movement plans as said second optimized traffic movement plan for execution.

4. The method of Claim 1 further comprising:

selecting one of said second plurality of traffic movement plans as said second optimized traffic movement plan for execution.

5. The method of Claim 1 further comprising:

employing a first plurality of traffic conditions for said first optimized traffic movement plan; and

comparing said current traffic conditions against the first plurality of traffic conditions for said first optimized traffic movement plan, and continuing to plan with the second planning boundary based substantially upon said first plurality of traffic movement plans to repetitively generate said second plurality of traffic movement plans for the traffic of said region.

6. The method of Claim 1 further comprising:

employing a first plurality of traffic conditions for said first optimized traffic movement plan; and

comparing said current traffic conditions against the first plurality of traffic conditions for said first optimized traffic movement plan, and responsively re-planning with the second planning boundary to repetitively generate as said second plurality of traffic movement plans for the traffic of said region: (a) a third plurality of traffic movement plans based substantially upon some of said first plurality traffic movement plans for the traffic of said region, and (b) a fourth plurality of traffic movement plans independent of said first plurality traffic movement plans for the traffic of said region.

7. The method of Claim 5 further comprising:

associating an objective function value with each of said first and second plurality of traffic movement plans; and

employing as said continuing to plan with the second planning boundary:

destroying at least one of said first plurality of traffic movement plans based upon said objective function values,

modifying at least one of said first plurality of traffic movement plans, in order to improve the objective function value thereof,

employing a plurality of said first plurality of traffic movement plans to generate one of said second plurality of traffic movement plans,

modifying at least one of said first plurality of traffic movement plans responsive to at least one perturbation associated with said current traffic conditions, and

generating at least one of said second plurality of traffic movement plans independent of said first plurality of traffic movement plans.

8. The method of Claim 1 further comprising:

determining objective function values for said first and second plurality of traffic movement plans; and

selecting said one of said first and second plurality of traffic movement plans as said second optimized traffic movement plan based upon said objective function values.

9. The method of Claim 8 further comprising:

employing a plurality of goals for each of said objective function values.

10. The method of Claim 8 further comprising:

ranking said first and second plurality of traffic movement plans based upon the objective function values; and

selecting said second optimized traffic movement plan for execution based upon said ranking.

11. The method of Claim 1 further comprising:

continuing said employing said first planning boundary and repetitively generating a first plurality of traffic movement plans for the traffic of said region for a predetermined time before said selecting one of said first plurality of traffic movement plans as a first optimized traffic movement plan for execution.

12. The method of Claim 1 further comprising:

associating a first planning horizon with said first planning boundary and a later second planning horizon with said second planning boundary;

inputting schedule changes;

adjusting at least one of said first plurality of traffic movement plans to said second planning horizon and said schedule changes; and

generating at least one of said second plurality of traffic movement plans employing said adjusted at least one of said first plurality of traffic movement plans.

13. The method of Claim 12 further comprising:

continuing said adjusting and said generating at least one of said second plurality of traffic movement plans for a predetermined time before said updating said first planning boundary.

14. The method of Claim 12 further comprising:

providing a corresponding objective function value and a corresponding age for each of said first and second plurality of traffic movement plans; and

downgrading the corresponding objective function value as a function of the corresponding age for each of said first plurality of traffic movement plans.

15. The method of Claim 1 further comprising:

deleting at least one of said first plurality of traffic movement plans.

16. The method of Claim 6 further comprising:

determining objective function values for said first and second plurality of traffic movement plans; and

selecting said one of said first and second plurality of traffic movement plans as said second optimized traffic movement plan based upon said objective function values.

17. The method of Claim 6 further comprising:

associating a first planning horizon with said first planning boundary and a later second planning horizon with said second planning boundary;

inputting schedule changes;

adjusting at least one of said first plurality of traffic movement plans to said second planning horizon and said schedule changes; and

generating at least one of said second plurality of traffic movement plans employing said adjusted at least one of said first plurality of traffic movement plans.

18. The method of Claim 17 further comprising:

continuing said adjusting and said generating at least one of said second plurality of traffic movement plans for a predetermined time before updating said second planning boundary.

19. The method of Claim 1 further comprising:

employing a plurality of currently executing reservations with said first optimized traffic movement plan with said first planning boundary;

employing a plurality of presently committed reservations with said first optimized traffic movement plan with said first planning boundary; and

employing a plurality of reservations that are expected to be committed during a subsequent planning cycle for said second plurality of traffic movement plans with said first planning boundary.

20. The method of Claim 1 further comprising:

including at least some of said first plurality of traffic movement plans and said second plurality of traffic movement plans in a pool of traffic movement plans.

21. The method of Claim 20 further comprising:

employing a plurality of generations of traffic movement plans in said pool including a first generation of said first plurality of traffic movement plans and a second generation of said second plurality of traffic movement plans.

22. The method of Claim 20 further comprising:

employing about 50 of said first and second plurality of traffic movement plans in said pool.

23. The method of Claim 21 further comprising:

redetermining current traffic conditions of said region;

updating said second planning boundary to provide a third planning boundary for said traffic based upon said redetermined current traffic conditions;

employing said third planning boundary and repetitively generating a third plurality of traffic movement plans in a third generation of said traffic movement plans;

providing a corresponding objective function value and a corresponding age for each of the traffic movement plans of said first, second and third generations;

downgrading the corresponding objective function value as a function of the corresponding age for each of said first and second plurality of traffic movement plans;

determining a best plan based upon the downgraded corresponding objective function value for each of said first and second plurality of traffic movement plans and the corresponding objective function value for each of the traffic movement plans of said third generation; and

comparing the corresponding objective function value of said second optimized movement plan to the objective function value of said best plan, in order to determine whether to replace said second optimized traffic movement plan with said best plan.

24. The method of Claim 23 further comprising:

employing a planning cycle for each of said generations; and

maintaining said objective function values for a predetermined count of said planning cycles before employing said downgrading.

25. The method of Claim 24 further comprising:

employing a planning window associated with said first and second plurality of traffic movement plans; and

discarding said movement plans after said planning window has passed.

26. The method of Claim 24 further comprising:

employing one of said objective function values having a positive value and another one of said objective function values having a negative value; and

downgrading both of said positive and negative values.

27. The method of Claim 24 further comprising:

employing one of said objective function values having a positive value or another one of said objective function values having a negative value; and

downgrading one of said positive and negative values.

28. The method of Claim 20 further comprising:

employing a corresponding objective function value for each of the traffic movement plans in said pool;

ordering the traffic movement plans in said pool based upon the corresponding objective function values; and

selecting one of said traffic movement plans in said pool as said second optimized traffic movement plan for execution based upon said ordering.

29. The method of Claim 28 further comprising:

determining the corresponding objective function value for a corresponding one of said traffic movement plans before adding said corresponding one of said traffic movement plans to said pool.

30. The method of Claim 29 further comprising:

ordering said corresponding one of said traffic movement plans when adding said corresponding one of said traffic movement plans to said pool.

31. The method of Claim 28 further comprising:

employing a corresponding age for each of the traffic movement plans in said pool;

downgrading the corresponding objective function value of the corresponding one of said traffic movement plans in said pool as a function of the corresponding age; and

re-ordering said corresponding one of said traffic movement plans in said pool responsive to said downgrading.

32. The method of Claim 20 further comprising:

deleting some of said first plurality of traffic movement plans and some of said second plurality of traffic movement plans from said pool, in order to maintain a predetermined count of traffic movement plans in said pool.

33. The method of Claim 6 further comprising:

employing a plurality of types of said traffic conditions of said region; and

employing checking for changes in at least one of said types of said traffic conditions as said comparing said current traffic conditions against the first plurality of traffic conditions for said first optimized traffic movement plan.

34. The method of Claim 33 further comprising:

employing at least one of changes in a railroad network and train ordering changes as said changes in at least one of said types of said traffic conditions.

35. The method of Claim 6 further comprising:

comparing said current traffic conditions against said first plurality of traffic conditions for said first optimized traffic movement plan and determining a re-planning score; and

employing said re-planning when said re-planning score exceeds a predetermined value.

36. The method of Claim 35 further comprising:

accounting for train schedule changes and responsively determining said re-planning score including said train schedule changes; and

employing said re-planning when said re-planning score including said train schedule changes exceeds a predetermined value.

37. The method of Claim 36 further comprising:

determining a relative number of changed trains from a count of train schedules changed divided by a count of trains in a planning horizon;

determining a relative number of new trains from a count of trains added divided by a sum of said count of trains in a planning horizon and said count of trains added; and

employing said relative number of changed trains and said relative number of new trains to determine said re-planning score.

38. The method of Claim 37 further comprising:

determining a relative total duration of changed train schedules;

multiplying said relative number of changed trains by said relative total duration of changed train schedules;

determining a relative total duration of new train schedules;

multiplying said relative number of new trains by said relative total duration of new train schedules, in order to provide a product; and

employing said product to determine said re-planning score.

39. The method of Claim 6 further comprising:

comparing said current traffic conditions against said first plurality of traffic conditions for said first optimized traffic movement plan and determining a re-planning score;

employing a plurality of types of said traffic conditions of said region; and

employing said re-planning when said re-planning score exceeds a predetermined value or in response to changes in at least one of said types of said traffic conditions.

40. The method of Claim 39 further comprising:

determining a count as a function of said re-planning score; and

generating said count of said fourth plurality of traffic movement plans.

41. The method of Claim 40 further comprising:

employing as said count a first count;

determining a second count of said first plurality of traffic movement plans;

determining a percentage from said function of said re-planning score; and

determining said first count as said percentage times said second count.

42. The method of Claim 39 further comprising:

determining a count as a function of said re-planning score; and

re-generating said count of said third plurality of traffic movement plans.

43. The method of Claim 42 further comprising:

employing as said count a first count;

determining a second count of said first plurality of traffic movement plans;

determining a percentage from said function of said re-planning score; and

determining said first count as said percentage times said second count.

44. The method of Claim 39 further comprising:

determining a first count and a second count as functions of said re-planning score;

re-generating said first count of said third plurality of traffic movement plans; and

generating said second count of said fourth plurality of traffic movement plans.

45. The method of Claim 39 further comprising:

employing a first function of said re-planning score for said first count;

employing a second function of said re-planning score for said second count; and

employing a sum of said first and second functions being equal to one.

46. The method of Claim 39 further comprising:

employing a first function of said re-planning score for said first count;

employing a second function of said re-planning score for said second count; and

employing a sum of said first and second functions being less than 0.5 when no schedule changes are present.

47. The method of Claim 1 further comprising:

providing a first objective function value for said first optimized traffic movement plan based upon said current traffic conditions;

determining a best plan from one of said first and second plurality of traffic movement plans;

providing a second objective function value for said best plan based upon said current traffic conditions; and

comparing said first objective function value to said second objective function value, in order to determine whether to replace said first optimized traffic movement plan with said best plan.

48. The method of Claim 47 further comprising:

determining that said second objective function value is less than said first objective function value by a predetermined amount and responsively replacing said first optimized traffic movement plan with said best plan.

49. The method of Claim 47 further comprising:

providing a corresponding objective function value and a corresponding age for each of said first and second plurality of traffic movement plans;

downgrading the corresponding objective function value as a function of the corresponding age for each of said first plurality of traffic movement plans;

determining said best plan based upon the downgraded corresponding objective function value for each of said first plurality of traffic movement plans and the corresponding objective function value for each of said second plurality of traffic movement plans; and

comparing said first objective function value to the objective function value of said best plan, in order to determine whether to replace said first optimized traffic movement plan with said best plan.

50. The method of Claim 6 further comprising:

comparing said current traffic conditions against the first plurality of traffic conditions for said first optimized traffic movement plan and determining a re-planning score;

determining that said re-planning score has exceeded a predetermined value and responsively employing said current traffic conditions to generate said second plurality of traffic movement plans;

providing a first objective function value for said first optimized traffic movement plan based upon said current traffic conditions;

determining a best plan from one of said first and second plurality of traffic movement plans;

providing a second objective function value for said best plan based upon said current traffic conditions; and

comparing said first objective function value to said second objective function value, in order to determine whether to replace said first optimized traffic movement plan with said best plan.

51. The method of Claim 6 further comprising:

employing a plurality of types of said traffic conditions of said region;

determining changes in at least one of said types of said traffic conditions of said region in said current traffic conditions and responsively employing said current traffic conditions to generate said second plurality of traffic movement plans;

providing a first objective function value for said first optimized traffic movement plan based upon said current traffic conditions;

determining a best plan from one of said first and second plurality of traffic movement plans;

providing a second objective function value for said best plan based upon said current traffic conditions; and

comparing said first objective function value to said second objective function value, in order to determine whether to replace said first optimized traffic movement plan with said best plan.

52. The method of Claim 1 further comprising:

generating said first plurality of traffic movement plans for a plurality of trains in a railroad network in said region; and

dynamically optimizing movements of said trains across said railroad network under changes of the traffic conditions in said railroad network.

53. The method of Claim 52 further comprising:

employing a plurality of track sections in said railroad network;

employing a plurality of reservations, with each of said reservations representing a planned usage of one of said track sections by one of said trains from an entry date/time to an exit date/time; and

combining said reservations to generate one of said first and second plurality of traffic movement plans.

54. The method of Claim 53 further comprising:

employing said first planning boundary as a collection of said reservations;

determining a current position and a speed for each of said trains in said railroad network; and

determining said reservations from said first optimized traffic movement plan and from the current positions and speeds of said trains in said railroad network.

55. The method of Claim 54 further comprising:

employing as some of said reservations a plurality of current reservations;

employing with one of said trains a first car and a last car;

employing said first car on one of said track sections;

determining a delay incurred before arriving at said one of said track sections by said first car and a delay extension incurred at said one of said track sections by said first car; and

employing said delay incurred and said delay extension incurred for each of said current reservations.

56. The method of Claim 54 further comprising:

employing with said one of said trains a plurality of cars including a first car and a last car;

employing as said entry date/time a date/time of entry of the first car onto one of said track sections; and

employing as said exit date/time a date/time of exit of the last car from the last said one of said track sections.

57. The method of Claim 54 further comprising:

determining a plurality of track blocks, track speed restrictions and train position gaps in said railroad network;

calculating a re-planning score based on said track blocks, said track speed restrictions and said train position gaps in said railroad network;

determining that said re-planning score has exceeded a predetermined value and responsively employing said current traffic conditions of railroad network to generate said second plurality of traffic movement plans;

providing a first objective function value for said first optimized traffic movement plan based upon said current traffic conditions of said railroad network;

determining a best plan from one of said first and second plurality of traffic movement plans;

providing a second objective function value for said best plan based upon said current traffic conditions of said railroad network; and

comparing said first objective function value to said second objective function value, in order to determine whether to replace said first optimized traffic movement plan with said best plan.

58. The method of Claim 54 further comprising:

employing a plurality of train schedules for said trains;

determining at least one train schedule change for said train schedules;

responsive to said at least one train schedule change, employing said current traffic conditions of said railroad network to generate said second plurality of traffic movement plans;

providing a first objective function value for said first optimized traffic movement plan based upon said current traffic conditions of said railroad network;

determining a best plan from one of said first and second plurality of traffic movement plans;

providing a second objective function value for said best plan based upon said current traffic conditions of said railroad network; and

comparing said first objective function value to said second objective function value, in order to determine whether to replace said first optimized traffic movement plan with said best plan.

59. The method of Claim 52 further comprising:

converting said first optimized traffic movement plan into a plurality of commands;

employing as said commands a plurality of route clears and control commands for said railroad network; and

outputting said route clears and said control commands for controlling real time traffic movement of said trains in said railroad network.

60. The method of Claim 59 further comprising:

employing a computer-aided dispatching system to execute said route clears and said control commands.

61. The method of Claim 60 further comprising:

receiving data from said computer-aided dispatching system regarding said trains in said railroad network; and

employing said data to generate said first plurality of traffic movement plans for said trains in said railroad network.

62. The method of Claim 52 further comprising:

periodically generating said second plurality of traffic movement plans for the trains of said railroad network;

providing a first objective function value for said first optimized traffic movement plan based upon said current traffic conditions of said railroad network;

determining a best plan from one of said first and second plurality of traffic movement plans;

providing a second objective function value for said best plan based upon said current traffic conditions of said railroad network; and

comparing said first objective function value to said second objective function value, in order to determine whether to replace said first optimized traffic movement plan with said best plan.

63. The method of Claim 62 further comprising:

employing at least one objective selected from the group comprising on-time performance, best time and minimizing overall delay to determine said first and second objective function values.

64. The method of Claim 50 further comprising:

employing a plurality of types of said traffic conditions; and

employing a weighting factor for each of said types in said re-planning score.

65. The method of Claim 64 further comprising:

employing as said types a first type for a plurality of track blocks, a second type for a plurality of track speed restrictions, and a third type for a plurality of train position gaps; and

employing a plurality of sums associated with said first, second and third types.

66. The method of Claim 65 further comprising:

employing a zero speed associated with said track speed restrictions; and

equating the sum associated with said first type with the sum associated with said second type.

67. The method of Claim 1 further comprising:

displaying a representation of said first optimized traffic movement plan.

68. The method of Claim 67 further comprising:

displaying a train graph including a time-distance representation of said first optimized traffic movement plan, in order to display a plurality of planned movements of trains in a railroad network.

69. The method of Claim 50 further comprising:

employing a railroad network in said region;

including a plurality of track blocks, track speed restrictions and train position gaps in said railroad network; and

determining said re-planning score as a function of said track blocks, track speed restrictions and train position gaps in said railroad network.

70. The method of Claim 51 further comprising:

determining changes in train schedules and responsively generating said second plurality of traffic movement plans.

71. A dynamic optimizing traffic planning apparatus for a region having a plurality of traffic and a plurality of traffic conditions of said traffic, said apparatus comprising:

means for inputting information representing said traffic conditions; and

means for executing a plurality of routines, said routines comprising:

a plan monitor determining a first planning boundary for said traffic based upon the traffic conditions of said region, determining current traffic conditions of said region, and updating said first planning boundary to provide a second planning boundary for said traffic based upon said current traffic conditions,

a plan generator successively employing said first planning boundary and said second planning boundary and repetitively generating a first plurality of traffic movement plans and a second plurality of traffic movement plans, respectively, for the traffic of said region, selecting one of said first plurality of traffic movement plans as a first optimized traffic movement plan for execution, selecting one of said first and second plurality of traffic movement plans as a second optimized traffic movement plan for execution; and successively outputting said first and second optimized traffic movement plans, and

a plan executive successively converting said first and said second optimized traffic movement plans into a plurality of commands for controlling traffic movement in said region.

72. The dynamic optimizing traffic planning apparatus of Claim 71 wherein said plan generator employs a first plurality of traffic conditions for said first optimized traffic movement plan; wherein said plan monitor compares said current traffic conditions against the first plurality of traffic conditions for said first optimized traffic movement plan; and wherein said plan generator continues to plan with the second planning boundary for a predetermined time based substantially upon said first plurality of traffic movement plans to repetitively generate said second plurality of traffic movement plans for the traffic of said region.

73. The dynamic optimizing traffic planning apparatus of Claim 71 wherein said plan generator employs a first plurality of traffic conditions for said first optimized traffic movement plan; wherein said plan monitor compares said current traffic conditions against the first plurality of traffic conditions for said first optimized traffic movement plan and responsively sends a signal to said plan generator; and wherein said plan generator, responsive to said signal, re-plans with the second planning boundary to repetitively generate as said second plurality of traffic movement plans for the traffic of said region: (a) a third plurality of traffic movement plans based substantially upon some of said first plurality traffic movement plans for the traffic of said region, and (b) a fourth plurality of traffic movement plans independent of said first plurality traffic movement plans for the traffic of said region.

74. The dynamic optimizing traffic planning apparatus of Claim 71 wherein said plan executive successively converts said first and said second optimized traffic movement plans into corresponding proposed near-term movement plans for manually controlling traffic movement in said region.

75. The dynamic optimizing traffic planning apparatus of Claim 71 wherein said plan executive successively converts said first and said second optimized traffic movement plans into a plurality of automatic control commands for automatically controlling traffic movement in said region.

76. The dynamic optimizing traffic planning apparatus of Claim 71 wherein said region includes a commuter rail system; and wherein said traffic conditions are commuter rail traffic conditions.

77. The dynamic optimizing traffic planning apparatus of Claim 71 wherein said region includes a railroad network; and wherein said traffic conditions are railroad traffic conditions.

78. The dynamic optimizing traffic planning apparatus of Claim 77 wherein said plan monitor determines said first planning boundary and a corresponding planning horizon; and wherein said plan generator inputs a plurality of train schedules, train properties and track descriptions for said railroad network, and outputs as said first optimized traffic movement plan a plurality of meet/pass plans for a plurality of trains over a predetermined time interval, which extends from said first planning boundary to said corresponding planning horizon.

79. The dynamic optimizing traffic planning apparatus of Claim 77 wherein said railroad network includes a plurality of trains; wherein said traffic conditions include train delays, changes in said railroad network and schedule changes for said trains; and wherein said plan monitor determines if re-planning by said plan generator is necessary from at least one of said train delays, said changes in said railroad network and said schedule changes for said trains.

80. The dynamic optimizing traffic planning apparatus of Claim 71 wherein said first optimized traffic movement plan includes a plurality of first traffic conditions; wherein said means for inputting updates said information representing said traffic conditions with said current traffic conditions; wherein said plan monitor compares said current traffic conditions against the plurality of first traffic conditions of said first optimized traffic movement plan and determines a re-planning score, and determines that said re-planning score has exceeded a predetermined value; and wherein said plan generator responsively determines a first count and a second count as a function of said re-planning score, re-generates said first count of said first plurality of traffic movement plans, and generates said second count of said second plurality of traffic movement plans.

81. The dynamic optimizing traffic planning apparatus of Claim 71 wherein said means for inputting updates said information representing said traffic

conditions with said current traffic conditions; and wherein said plan generator provides a first objective function value for said first optimized traffic movement plan based upon said current traffic conditions, generates said second plurality of traffic movement plans for the traffic of said region, determines a best plan from one of said first and second plurality of traffic movement plans, provides a second objective function value for said best plan based upon said current traffic conditions, and compares said first objective function value to said second objective function value, in order to determine whether to replace said first optimized traffic movement plan with said best plan.

82. The dynamic optimizing traffic planning apparatus of Claim 71 wherein said first optimized traffic movement plan includes a plurality of first traffic conditions; wherein said means for inputting updates said information representing said traffic conditions with said current traffic conditions; wherein said plan monitor compares said current traffic conditions against the plurality of first traffic conditions of said first optimized traffic movement plan and determines a re-planning score, and determines that said re-planning score has exceeded a predetermined value; and wherein said plan generator responsively employs said current traffic conditions to generate said second plurality of traffic movement plans, provides a first objective function value for said first optimized traffic movement plan based upon said current traffic conditions, determines a best plan from one of said first and second plurality of traffic movement plans, provides a second objective function value for said best plan based upon said current traffic conditions, and compares said first objective function value to said second objective function value, in order to determine whether to replace said first optimized traffic movement plan with said best plan.

83. The dynamic optimizing traffic planning apparatus of Claim 71 wherein said means for inputting updates said information representing said traffic conditions with said current traffic conditions; wherein said plan monitor employs a plurality of types of said traffic conditions of said region, and determines changes in at least one of said types of said traffic conditions of said region in said current traffic conditions; and wherein said plan generator responsively employs said current traffic conditions to generate said second plurality of traffic movement plans, provides a first objective function value for said first optimized traffic movement plan based upon

said current traffic conditions, determines a best plan from one of said first and second plurality of traffic movement plans, provides a second objective function value for said best plan based upon said current traffic conditions, and compares said first objective function value to said second objective function value, in order to determine whether to replace said first optimized traffic movement plan with said best plan.

84. The dynamic optimizing traffic planning apparatus of Claim 71 wherein said means for executing includes a single processor for said plan monitor, said plan generator and said plan executive.

85. The dynamic optimizing traffic planning apparatus of Claim 71 wherein said means for executing includes a first processor for said plan monitor and said plan generator, and a second processor for said plan executive.

86. The dynamic optimizing traffic planning apparatus of Claim 71 wherein said means for executing includes a first processor for said plan monitor, a second processor for said plan generator, and a third processor for said plan executive.

87. A traffic management system for a region having a plurality of traffic and a plurality of traffic conditions of said traffic, said apparatus comprising:

means for inputting information representing said traffic conditions;

means for executing a plurality of routines, said routines comprising:

a plan monitor determining a first planning boundary for said traffic based upon the traffic conditions of said region, determining current traffic conditions of said region, and updating said first planning boundary to provide a second planning boundary for said traffic based upon said current traffic conditions,

a plan generator successively employing said first planning boundary and said second planning boundary and repetitively generating a first plurality of traffic movement plans and a second plurality of traffic movement plans, respectively, for the traffic of said region, selecting one of said first plurality of traffic movement plans as a first optimized traffic movement plan for execution, selecting one of said first and second plurality of traffic movement plans as a second optimized traffic movement plan for execution; and successively outputting said first and second optimized traffic movement plans, and

a plan executive successively converting said first and said second optimized traffic movement plans into a plurality of commands for controlling traffic movement in said region; and

means for executing said commands to control traffic movement in said region.

88. The traffic management system of Claim 87 wherein said means for executing said commands is a computer-aided dispatching system for controlling movements of trains in said region.

89. The traffic management system of Claim 88 wherein said computer-aided dispatching system includes a database having information about railroad infrastructure and control for said region.

90. The traffic management system of Claim 87 wherein said means for executing said commands is a traffic control system that issues commands for controlling said traffic.

91. The traffic management system of Claim 90 wherein said traffic control system is selected from the group comprising an operations control center, a network management center, a network control center and a traffic control center.

92. The traffic management system of Claim 87 wherein said region includes a railroad network having a plurality of trains; wherein said information representing said traffic conditions includes dynamic data from said railroad network; wherein said plan generator inputs a plurality of train schedules, train properties and track descriptions for said railroad network and generates as said first and second plurality of traffic movement plans a plurality of optimized meet/pass plans for said trains in said railroad network; wherein said means for executing said commands employs said dynamic data from said railroad network; and wherein said meet/pass plans do not violate any constraints on said train schedules, said train properties and said track descriptions for said railroad network based upon said dynamic data from said railroad network.

93. The traffic management system of Claim 87 wherein said region includes a railroad network having a plurality of trains; and wherein said means for executing displays a train graph including a time-distance representation of

said first optimized traffic movement plan, in order to display a plurality of planned movements of said trains in said railroad network.

94. The traffic management system of Claim 87 wherein said first planning boundary comprises a plurality of reservations for said first optimized traffic movement plan, a plurality of presently committed reservations for said first optimized traffic movement plan, and a plurality of reservations that are expected to be committed during a subsequent planning cycle for said second plurality of traffic movement plans.